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REPORT DOCUMENTATION PAGE

AD-A220 274 DTIC ELECTE APR 10 1990 S D

1b. RESTRICTIVE MARKINGS	
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE	3. DISTRIBUTION / AVAILABILITY OF REPORT Approved for public release; distribution unlimited.
4. PERFORMING ORGANIZATION REPORT NUMBER(S)	5. MONITORING ORGANIZATION REPORT NUMBER(S) ARO 26288.1-MA-SDI
6a. NAME OF PERFORMING ORGANIZATION A. Libgober	6b. OFFICE SYMBOL (If applicable)
7a. NAME OF MONITORING ORGANIZATION U. S. Army Research Office	
6c. ADDRESS (City, State, and ZIP Code) Department of Mathematics University of Illinois at Chicago Box 4348 M/C 249, Chicago, IL 60680	7b. ADDRESS (City, State, and ZIP Code) P. O. Box 12211 Research Triangle Park, NC 27709-2211
8a. NAME OF FUNDING / SPONSORING ORGANIZATION U. S. Army Research Office	8b. OFFICE SYMBOL (If applicable)
9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER DAAL03-88-K-0134	
8c. ADDRESS (City, State, and ZIP Code) P. O. Box 12211 Research Triangle Park, NC 27709-2211	10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. / PROJECT NO. / TASK NO. / WORK UNIT ACCESSION NO

11. TITLE (Include Security Classification)
"Topological Complexity of Algorithms"

12. PERSONAL AUTHOR(S)
A. Libgober

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT
Final	FROM 12/16/88 TO 12/15/89	03/12/90	1

16. SUPPLEMENTARY NOTATION
The view, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy, or decision, unless so designated by other documentation.

17. COSATI CODES		
FIELD	GROUP	SUB-GROUP

18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
Topological complexity, fundamental groups, discriminants, (DD 1473 only)

19. ABSTRACT (Continue on reverse if necessary and identify by block number)
The research was directed toward understanding methods for calculating complexity of algorithms in non-classical sense. Topological complexity measures the necessity of branching in any possible algorithm for solving given problem. Particular problems which I considered are solving polynomial equations of special type (i.e. with several apriori vanishing coefficients). The difficulty is in the lack at the present time detailed information on geometry and topology of discriminants of the space of polynomial equations of the type in question. I was able to find the degrees of these discriminants and resolved questions of irreducibility. Topological complexity was found completely for trinomial equations.
Major steps was made toward investigating of algorithms for solving systems of 2 polynomial equations with 2 unknowns. I essentially calculated the fundamental group of the space of such system obtaining close relations to the Artin's braid group. Preliminary investigation was made in the meaning of topological complexity of solving differential equations. Keywords.

20. DISTRIBUTION / AVAILABILITY OF ABSTRACT	21. ABSTRACT SECURITY CLASSIFICATION
☐ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS	Unclassified
22a. NAME OF RESPONSIBLE INDIVIDUAL	22b. TELEPHONE (Include Area Code) / 22c. OFFICE SYMBOL

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90 04 10 022

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